

NASA Next-Generation Suborbital Researchers Conference

Keynote Speaker:
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It is wonderful to be here in Colorado. I especially want to thank Alan Stern for organizing and creating this event and so much that went behind it.

For me to be in Colorado is quite a privilege and an honor because it is where I went to college. Here we are in Boulder, and I went out with some of the guys last night to dinner. They're saying, "Oh, how is it to be back in some of your old stomping grounds?" I had to acknowledge that, in fact, I did not spend much time on Boulder.

My college years were spent in Colorado Springs at "the" Colorado College. I was not nearly cool enough to visit Boulder very often. Although I did manage to eke out a career following my liberal arts education at Colorado College, I think the Boulder scene was always something that we aspired to. It is about 75 miles north of where I went to college, but 5 miles north of where I went to college was the Air Force Academy, and that was sort of -- we never got much farther than there, given that in those days especially there were almost no women.

In fact, my first year at Colorado College was the last year the Air Force Academy had not any women in that graduating class, the LCWB. I'll let you figure out the acronym.

So I love to come out to Colorado. I ran this morning and, maybe because the college campus is quite a bit larger than CC where I went or the altitude or that it was a little cold and I didn't bring all my cold weather gear, I couldn't run as far as I would have liked, but my belief is that as you talk about results -- and I think that last story makes it really, really clear that what this conference is about and gathering this many people, it is about getting those results.

So, at this point, it is my privilege to talk to you about the very exciting time we are having at NASA. President Obama has provided a \$6-billion increase for NASA over the next 5 years at a time, as you might know, when discretionary budgets are either frozen or reduced in order to pay for those agencies, like NASA, that did get increases.

So we truly appreciate the opportunity the budget provides, but, as I think Mark Sirangelo alluded to, we know it is a very exciting time, partly because it is a bit risky. Change is hard. That is not something that everyone is as excited about as the people in this room.

So, sticking with that, I am going to make an analogy. I was thinking of what Winter Olympic sport this is like, and although CC has a great hockey team, I am not a big fighter, so I don't think we're an ice hockey -- we're not used to battle, in my view. We're a little more nuanced than that.

Now, I am an adrenalin junky. So downhill skiing or even that new mobile skiing where you go and do a couple jumps in the middle of that, that looks fun, but for me, I think we are figure skaters. And we are doing wonderful, beautiful, amazing things but on very thin ice.

[Laughter.]

So we have to be careful of this. There are some crafts -- there are some people trying to heat up the room, get that ice a little thinner, but I really believe that with all the folks in this room, we're going to be able to get there.

So what are we doing with our extra \$6 billion from the President's budget? We're going to fund increases in our sciences and climate change research. We're going to fund more space science research and aeronautics research, especially in green aeronautics, things like helping create biofuels for aviation fuel.

With this budget, we are going to also foster

innovation in space research to help us inspire the next generation of Americans, and we are going to talk a lot about that, I know, today and tomorrow.

Along these lines, the expansion of the Space Station, which something that is coming with this year's budget request, President Obama -- I don't know if you know -- spoke to the astronauts on Space Station yesterday, and I'm just going to quote quickly from something he said.

He said to the astronauts yesterday: We just wanted to let you know that the amazing work that's being done on the ISS not only by our American astronauts but also our colleagues from Japan and Russia is, first, a testament to the human ingenuity and testament to the extensive skill and courage that you guys bring to bear -- and it's not all guys up there -- and it is also a testimony to why continued space exploration is so important and is part of the reason why my commitment to NASA is unwavering.

So I really wanted to make that point that the commitment here is unwavering and not only to NASA but to doing things differently and creatively.

Einstein said, "The world we have created is a product of our thinking, and it cannot be changed without changing our

thinking." So part of that change in our thinking means that we need to think about new ways and what the role of government and industry should be to explore space.

So we want to open a space frontier -- we have been talking about that for along time -- to enhance access to space and to give more people the opportunity to be part of the incredible journey. We want to allow more companies, more markets, and jobs to be developed, and that is what we do best in the country. So NASA can be a big part of this vision.

This shouldn't be news to anybody. At Charlie's and my confirmation hearing in the Senate this July, Charlie said, "I dream of a day when Americans" -- any American -- "can launch into space and see the magnificence and grandeur of our home planet...as I have been blessed to do."

So NASA and space belongs to all of us. Space needs to become something the people can personally participate in, rather than just marvel from afar, and we do hope that through programs like this, people will feel more connected, not because they've necessarily been there but because they got an increased opportunity to participate in what we're doing.

Now, the core of this idea has existed for many years, and the core of the idea of developing space commercially,

allowing government to play their role doing advanced research and allowing commercial companies to take that market and grow it, I was first at the knee of some people in this room learning about this in the mid '80s, people like Gary Hudson and others who are here and who have been leading this effort since the '80s. So now together we are here to make it a reality to do that thing that folks have been wanting to do forever.

So this is all in support of the broader goals to strengthen the American aerospace sector and to extend human flight into the solar system. This undertaking is something that no single company or group of companies or even a sector of the economy or one government can do. We need resources and the will that all of us can muster plus the competitive pressure of the free markets to consistently improve and then add the innovation of the American entrepreneur.

So it's important for the focus of this conference -- we're focusing in this conference on suborbital research element of how we're developing commercial space, and as part of this approach, we have been increasing access to space through increased research and technology development opportunities.

So, in the suborbital research arena, we have started, as Alan mentioned, the CRuSR Program, which stands for Commercial

Reusable Suborbital Research Program, and it has officially come about in the 2010 budget. We have \$2.5 million dedicated to this program in 2010 to buy transportation services from commercial providers to conduct our scientific research and education projects and to develop new technology.

So we believe that the suborbital market and the possibilities for government to stimulate the development of the new orbital capabilities that evolve suborbital, so suborbital puts us on a sustainable, step-by-step path to build an industry that evolves to low-cost access to orbit, which is also a focus of this project and our future at NASA.

So this is my Oprah moment. You can all look under your chairs and see if there's keys to a new car down there.

[Laughter.]

But there's not keys to a new car. They're keys to new spaceships.

We're announcing today that in our 2011 budget, we have requested \$15 billion for the CRuSR Program, to show you just how serious we are about developing and opening this market.

Did I say "billion"?

[Laughter, applause, cheering.]

In case anyone is watching the video machine, the

million -- \$15 million, hopefully that's good too, going from \$2.5 million to \$15 million.

[Applause.]

So NASA developed this program and began it under Mike Griffin. I'm absolutely not the person that people think I am, to just want to come into NASA and make change for change sake. There are a number of things NASA is doing like this program that are fabulous. So we're just planning to grow it.

Along the lines of my earlier message, we believe that CRuSR Program through involving this broader segment of the public aligns with our goals of education and inspiration. So, over time, we anticipate that many of the things that we will fly will be for universities and students.

So why do we think this is important to do, and do we have any reason to believe that this is something that will help encourage students and universities? And last night at the reception, I was introduced to Steve Collier from Perdue who was talking about the student payloads that he flies on the Zero-G aircraft that NASA helps facilitate those experiments, and he was telling me that of his students at Perdue, he gets these incredible e-mails talking about how life-changing the event is applying this research.

And he said, "I will send you some of the e-mails." I said, "Well, could you do it tonight? Because I would really like to say something about it in the talk tomorrow." I don't like to just say, oh, it's so inspirational and encourages students.

So he did send me a couple e-mails, and I want to quickly quote that the first one was thanking for providing opportunities on a Zero-G aircraft for students. This student says, "It will be life-changing," that "I want to share with you what I suspect you already know. I took a job at Space Systems/Loral after a few months out here, and I'm consistently amazed at how faithfully our project simulated a professional engineering environment." It talks about how it prepared him for the real world, and in the end, this project, even without the flight itself, was "easily the most valuable course I took at Perdue."

And the next one, he -- I did actually -- "Being a part of the first research flight team, in fact, even in '96 and '97 is one of the highlights of my undergraduate experience. After leaving NASA and entering the business world, I still find people mesmerized when I tell them about the opportunities I had to apply real research as a student at Perdue."

These are the kinds of things that NASA should be doing that we say we're doing and that the President has asked us to do, and we need to continue.

So you all know I have a personal history and interest in commercial space flight and maybe eight years ago made an attempt myself to go fly commercially through the Russian program. At the time, I've always looked forward to it, but I've had a lot of questions about, well, why would you take that risk when, in fact, you have little kids.

And at first, of course, my feminine side says, well, they never ask men that question or fathers, but one of my responses was they're one of the reasons I actually do it. And that is because I was providing for them that ability to see that they could do anything in their lives, that even their 40-year-old mother could potentially go to space. And, honestly, doing it in another culture and in a way that was really involving the commercial space industry which was the goal of the potential flight was something that I felt very strongly about.

And, frankly, I think so for a lot of the goals for me, that worked because my six- and eight-year-old definitely believe they can do anything. Sometimes, now that they are 15 and 17, that isn't such a good thing.

[Laughter.]

But, hopefully, it will be in the future.

So the President challenged NASA to bring back the inspiration and excitement of space to America, and a big part of fulfilling that challenge is inspiring that next generation. We have to get them excited about space and encourage them to enter the STEM field. Again, it is all for the same purpose. We are using innovation and economic development to help recover our economy. The science and technology investment that this country makes is what has allowed that in the past.

Also key to American success is to continue to be that world leader and that beacon that folks from other countries look to and have looked to for the past centuries over being able to say in the United States, "We can do anything." And we need as a nation, NASA continue to be that beacon where a child growing up overseas looks and says, "We want to be a part of that." And we are looking through this budget also in a more international and collaborative way.

So it's in this context that I often think about and ask you to think about the stories of the emerging companies that are already happening. The companies represent an opportunity to make this leap not only for our economic base but for motivating

the next generation.

Note that many of the people who have already at least started some of these businesses are entrepreneurs who made their first millions or billions, probably in their case, successes out of the U.S. innovation over the past two decades, the Elon Musks and John Carmacks and Jeff Bezos. And now what do they see as exciting and the next big thing to do is what you all are here to talk about and what we have embedded in our future budget at NASA.

So there's a lot of opportunity here to share these stories and futures with the next generation and to motivate them to be a part of the exciting new era in space exploration.

So inspiration doesn't come from programs or policies or hardware, press releases or even YouTube videos. It comes from touching something deep inside of us, and it comes from believing you can make a difference and you can be part of it.

Now, we know that this will be risky. One of the criticisms we've had is that there will be risk involved. Well, folks, as you all know, NASA takes risk. That's what we do every day. We would not launch anything if we didn't take a risk. NASA learns to manage that risk, and through managing the risk, we are able to come up with even new innovations that we can help

pass along to the private sector. Really, anything in life is a risk and certainly all the great things. Having kids is a risk, falling in love, those other things that not only are a big risk but the big payoff.

So NASA is going to treat these commercially developed spacecraft for the purposes of applying our research the way we have treated past high-speed aircraft. They are going to be assessed for safety at the Dryden Research Center, which led our research activities on things like the X-1 and X-15.

So, ultimately, this new partnership between NASA and the space industry, entrepreneurial space industry is key to meeting all of the President's goals that we have laid out for NASA.

As shown by many of you in this conference, we are really on the cusp of an exciting new capability for our country and for our economy. Our national imagination needs for us to open space to the American people, and it's time to make space personal.

We know that change is not easy, and the ice is thin, but there is risk in life. And all of the things that we are talking about are so worth doing, and we do have this moment in time, as Mark Sirangelo said, so we need all of you to help us

shape that future.

I'm so glad to be here with you, and we are talking about this being the starting ground for the future of this. If this is the starting ground, I know a lot of us have been in the basement a long time. We are not really on the ground floor. We are a couple floors up, but, with you, we just cannot wait to take those future steps together.

So thank you so much, really, all the best for the future and at NASA.